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## 基于GIS的滑坡预测模型的预测率及其作用

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**摘要** 滑坡预测模型的选择直接影响到滑坡预测的准确性, 是滑坡预测的关键所在。该研究利用意大利Alpago地区的滑坡数据和其他相关地理空间数据, 以模糊伽马模型、模糊代数积模型、模糊代数和模型以及模糊最小模型等4个定量滑坡预测模型为例, 探讨滑坡预测模型的预测率在对比、评价和选择不同模型方面的作用。滑坡预测模型的预测率是, 模型预测结果图的各个级别类型中, 未用于建模的滑坡面积百分比的累积分布函数。在地理信息系统中, 利用已知的滑坡分布数据和模型的预测结果图, 可以计算滑坡预测模型的预测率。研究表明, 滑坡模型的预测率是滑坡预测模型自身特性的度量, 在输入图层和滑坡类型确定的条件下, 滑坡预测模型的预测率可作为对比、评价和选择不同模型的定量指标, 可以用来确定最合适的预测模型。

**关键词** [边坡工程](#); [地理信息系统](#); [滑坡](#); [预测模型](#); [预测率](#)

分类号

## PREDICTION RATE OF GIS-BASED MODELS FOR PREDICTING LANDSLIDES AND ITS APPLICATIONS

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### Abstract

Selection of models for predicting landslides directly influences the accuracy of landslide prediction and is the key factor in landslide prediction. By using the geo-spatial data about landslides and related resulting factors in Alpago, Italy, the roles and applications of prediction rate of models for predicting landslides are discussed. Four models are used as examples including fuzzy gamma model(FGM), fuzzy algebraic product model(FAPM), fuzzy algebraic sum model(FASM) and fuzzy minimum model(FMM). Prediction rate is the cumulative distribution function of the area percentage of the landslides not used to construct a model with respect to the classes in the prediction map generated. By using the geographic information system(GIS), the prediction rate of a model can be calculated with the prediction map generated by the model and the landslide distribution data not used to construct the model. Based on the calculated prediction rates, the prediction abilities of the four models are compared and evaluated. The results show that the prediction rate of a model for predicting landslides is an indicator of the model characteristics; and that under the condition of defined input layers and specified landslides, the prediction rates of different models can be used as quantitative criteria for comparing, evaluating the models and for selecting the best one.

**Key words** [slope engineering](#); [geographic information system \(GIS\)](#); [landslide](#); [prediction model](#); [prediction rate](#)

